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ores is treated of by Mr. Frank L. Nason, the author of the report on Iron Ores, published by the Missouri Survey in 1892. The report on the building stones is by Mr. G. E. Ladd.

The first of this series, viz., the Higginsville sheet, was issued in folio form, the text being printed on large sheets of the same size as the maps, somewhat similar to the sheet reports issued by the United States Geological Survey, except that the former was stitched. In these later reports the text is printed in octavo form, while the map with the sheet of sections and a sheet of brief explanatory matter is issued in a folio cover separately. A portion of the edition, however, has the map and sheet of sections printed on thin paper, folded and inserted at the end of the pamphlet. Thus this series of reports have been issued in three forms, which may serve to assist in deciding the best form for publication of future reports for different purposes.

J. D. R.

*Preliminary Report on the Rainy Lake Gold Region.* By H. V. WINCHELL and U. S. GRANT. Geol. and Nat. Hist. Survey of Minn., 23rd Ann. Rept., pp. 36-105. Jan., 1895.

Considerable excitement has been caused during the last year by the reported discoveries of rich gold-bearing veins at Rainy Lake, on the northern border of Minnesota, and accordingly an examination of this region was made by the Geological Survey of the State. The veins occur in more or less crystalline rocks of Pre-Cambrian age, and can be classed as: (a) fissure veins, (b) segregated veins and (c) fahlbands. The most promising part of the district is in what is known as the Seine River country, in Canadian territory, where there are true fissure veins which furnish a good quality of free-milling ore. Actual mining was conducted during the last summer in but one

place—at the Little American mine, in Itasca county, Minn.; but prospecting and exploitation have been carried on in a number of other places. As yet the development is insufficient to warrant the positive assertion that profitable gold mining can be conducted in the Rainy Lake district, but in several localities the prospects are full of encouragement and promise. The report is accompanied by a geological map of the region.

#### NOTES AND NEWS.

##### BIOLOGICAL.

THE January number of the *Geological Magazine* contains a note by Professor H. G. Seeley, on the skeleton of *Pareiasaurus baini*. This remarkable animal is one of the Anomodontia which Professor Seeley has been making known to science from the Karoo or Upper Triassic beds of South Africa. He observes that while there are superficial characters which parallel the labyrinthodont amphibians, there is no doubt the animal finds its place among true reptilia. It is remarkable for the number of sharp recurved teeth upon the palate, together with the teeth in sockets on the alveolar margins of the jaw. Notwithstanding the extremely heavy build of the animal, there is much that recalls the lowest mammalia in the shoulder girdle and the fore and hind limbs. It is the shoulder chiefly which indicates this affinity with the Monotremata. The new knowledge which this animal supplies gives a meaning to the ordinal term by showing the resemblances in the teeth to various groups of animals which would not have been suspected from the reptilian structure of the skull, or the mammalian structure of the extremities. The skeleton is figured, as it now appears mounted in the British Museum, of a total length of seven feet, nine inches. It would be difficult to imagine a more grotesque quadruped. Those who have had experi-

ence in mounting stone skeletons realize what an extremely difficult undertaking it is, and will judge of this particular mount with leniency; at the same time, an examination of the figure, or still more of the original specimen in the Museum, shows that the limbs have been placed in an unnecessarily awkward and impossible position. There was no necessity for placing the hind limbs so far in front of the center of gravity of the posterior half of the body, or for turning the fore feet so far inward that locomotion in a forward direction would be rendered impossible.

THE latest Bulletin from the Museum of Comparative Zoölogy is Professor Agassiz's '*Reconnaissance of the Bahamas and of the elevated coral reef of Cuba in the steam yacht Wild Duck, January to April, 1893,*' covering 200 pages, 47 plates, and a large number of illustrations in the text. It contains a complete survey of this remarkable coralline region, and is not only full of original observations and notes of great value, but brings the region far more easily within the reach of future biological and geological exploration. As the survey in the *Wild Duck* continued over only four months, it has rather the reconnaissance character of that made by Professor Agassiz in the '*Albatross,*' on the west coast of South America, than the thoroughness of the author's work upon the *Blake*. The *Wild Duck* was placed at Mr. Agassiz's disposal by Mr. John M. Forbes, and while not fitted like the Government vessels for deep sea work, proved to be admirably adapted for cruising on the Bahama banks, her light draft enabling her to go to every point of interest and to cross and recross the banks where a larger vessel could not follow. The greater part of the Bulletin is descriptive. A number of important problems are discussed, the author closing with an expression of his own views upon the formation of coral reefs, as con-

firmed by this exploration of the Bahamas: "Substitute subsidence for rising land and remembering that reef coral will not grow at a greater depth than twenty fathoms, we eliminate subsidence as a factor unless we are prepared to accept or imagine a synchronism between the growth of corals and subsidence in a great number of the districts in which they flourish, of which we have no proof."

#### WELDING OF IRON.

AT the last meeting of the Royal Society, according to the *London Times*, a paper on *Iron and Steel at Welding Temperatures* by Mr. T. Wrightson, M. P., was read. The object of the paper was to demonstrate that the phenomenon of welding in iron is identical with that of regelation in ice. The author recapitulated some experiments which were made by him in 1879-80 upon cast iron, and proved the fact that this form of iron possesses the property of expanding while passing from the liquid to the plastic state during a small range of temperature, and then contracts to the solid state, and that the expansion amounts to about 6 per cent. in volume. This property of iron resembles the similar property of water in freezing, which, within a range of about 4° C., expands about 9 per cent. of its liquid volume, and then contracts as the cooling proceeds. Subsequent investigations at the Mint appeared to prove that wrought iron at a welding temperature possesses the same property of cooling under pressure which was proved by Lord Kelvin to exist in freezing water, and on which demonstration the generally received theory of regelation depends. The author distinguished the process of melting together of metals from that of welding. Either process forms a junction, but the latter takes place at a temperature considerably below the melting point. The well-known and useful property of welding in iron appeared,

therefore, to depend, as in the case of regelation in ice, upon this critical condition, which exists over a limited range of temperature between the molten and the plastic state. An interesting discussion followed, in which Lord Kelvin, Professor Roberts-Austen, Professor Silvanus Thompson and others joined.

#### THE JOINT COMMISSION OF THE SCIENTIFIC SOCIETIES OF WASHINGTON.

At a meeting of the Joint Commission of the Scientific Societies of Washington, on January 25th, recommendations were made which have since been adopted by the Societies represented on the Commission, which are: The Anthropological, the Biological, the Chemical, the Entomological, the Geological, the National Geographic, and the Philosophical Societies.

The resolutions adopted are as follows:

The Joint Commission of the Scientific Societies of Washington, believing that fuller coöperation of the Societies is desirable, and that it can advantageously be provided for by enlarging the powers of the Joint Commission, recommend to the Societies the adoption of the following:

The Joint Commission shall be composed of the officers and administrative boards of the several component Societies

The Commission shall have power:

- a. To provide for joint meetings of the Societies;
- b. To conduct courses of popular lectures;
- c. To prepare a joint directory of the members of the Societies;
- d. To distribute to all members of the Societies periodic advance notices of the meetings of the several Societies;
- e. And to act in the interest of the component Societies at the instance of any of them.

The following officers have been elected: President, Gardiner G. Hubbard; Vice-President, G. Brown Goode; Secretary, J. S. Diller; Treasurer, P. B. Pierce; Members at Large of the Executive Committee, J. W. Powell, William H. Ashmead, George M. Sternberg, G. K. Gilbert, W. H. Dall, Charles E. Munroe and C. D. Walcott.

#### GENERAL.

THE *Educational Review* for March should be read by all who are interested in elemen-

tary and secondary education. The number consists of the report of 'The Committee of Fifteen' appointed by the Department of Superintendence of the National Educational Association and submitted at Cleveland, February 19-21. The three sub-committees report respectively, 'On the training of teachers,' 'On the correlation of studies in elementary education,' and 'On the organization of city school systems.'

MR. T. C. MARTIN contributes to the March number of *The Century Magazine* an article on Hermann von Helmholtz well calculated to impress the general reader with the magnitude of Helmholtz' genius. The article is accompanied by a portrait of Helmholtz, as he appeared during his visit to America in 1893, which should be preserved by all men of science.

THE American Book Company has just published a fourth edition of Dana's *Manual of Geology*, the work being enlarged by 150 pages. The entire manuscript, extending to 1000 pages of printed matter, is in Professor Dana's own hand-writing, which is remarkable in the case of an author in his eighty-third year.

A TELESCOPE is being constructed for the Berlin Industrial Exposition, to be held next year, in which the lenses, made by Steinheil of Munich, will be 110 cm. in diameter.

HELMHOLTZ' library has been bought by the German Government for the Physico-Technical Institute.

THE annual appropriation for the University of North Carolina has been made by the Legislature. It had been feared that this might not be done. The recent Legislature has reorganized the Board of Regents of the West Virginia University and has reduced it from thirteen to nine, requiring all the members to be appointed from the two leading political parties, as nearly equally divided between them as practi-

cable; its members are appointed for a period of six years, one-third changing every two years. Owing to former dissensions in the faculty of the University, the time of all the professors expires on June 15th; and the Board, at its meeting in June, will elect an entire new faculty, including president and professors. This applies only to the professors of the University, not to members of the Agricultural Station Staff. Dr. Rudolph J. J. de Roode, Chemist of the Station, resigned the first of February, to accept a more lucrative position in New York. His position has been filled by the appointment of B. H. Hite as chemist and G. Wm. Gray as assistant chemist, both of Johns Hopkins University.

#### SOCIETIES AND ACADEMIES.

##### THE BIOLOGICAL SOCIETY OF WASHINGTON.

At the meeting held March 9, 1895, the papers were presented, of which abstracts are here given.

Dr. C. W. Stiles spoke of *A double-pored Cestode with occasional single pores*.<sup>\*</sup> Great stress has been laid upon the arrangement of the genital pores in the classification of the Cestoda, but this character alone is not of generic value. Stiles has already shown that although *Thysanosoma Giardi* generally possesses alternate genital pores, it occasionally possesses double pores in its segments. In American rabbits, the speaker finds two species of tapeworms, one of which possesses irregularly alternate genital pores and a peculiar arrangement of the eggs in capsules—such as is found in the genus *Darainea*; this makes it possible that this species is the adult stage of the armed cysticercois described from the intestine of rabbits in his Note 31; if this be so, the parasite would be classified with the genus *Darainea*, although, according to Railliet's

present classification, based upon the arrangements of the pores, it is an *Andrya*. The second tapeworm possesses *double genital pores*. If classified on its pores alone, it is a *Ctenotania* Rail. It differs from the type of the genus (*Ct. marmotæ*) in possessing a double uterus instead of a single uterus. One strobila of this rabbit tapeworm (*Ctenotania* sp.?) was found in which most of the segments possessed double pores, but thirteen segments were found with irregularly alternate pores. This anomaly is extremely important, both from a morphological and a systematic standpoint, and the speaker expressed the opinion that a thorough study of a large series of Cestoda in any group would result in greatly modifying the present classification and in suppressing a large number of species.

Dr. Theo. Holm discussed *Œdema of Violet Leaves*. Leaves of a cultivated garden variety of *Viola odorata* affected with this disease were studied, and their anatomical structure showed several points of interest. The diseased parts of the leaf showed brownish, wart-like swellings on both faces of the blade, above and between the nerves. The following changes were observed in the tissues: The epidermis became very thick-walled, and the stomata modified into narrow, irregular openings. The palisade tissue showed numerous (three or even four) tangential divisions, and swelled up very considerably, pushing out through the epidermis. The pneumatic tissue, which seemed to be the most affected, had increased in size, the cells having divided themselves very considerably so as to form a loose, open tissue of large, roundish cells. The petiole showed similar symptoms of the disease, especially along the keel and the wings. The collenchymatic tissue underneath the epidermis, the bark parenchyma, and the endodermis showed numerous divisions, so that similar swellings were produced like those observed on the leaf blade.

<sup>\*</sup>To be published as 'Notes on Parasites, 36: A double-pored Cestode with occasional single pores' in *Centralblatt für Bact. u. Parasitenkunde*, 1895.